

# CPOSC - A Gentle Introduction to RxJS

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# Reactive, Event-driven Programming

# Typical asynchronous JavaScript processes

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## setTimeout and setInterval

```
1  window.appData = { numBeeps: 0 };
2
3  const handle = setInterval(function() {
4    console.log('beep!');
5    window.appData.numBeeps++;
6  }, 2000);
7
8  // time flies...
9  setTimeout(function() {
10   clearInterval(handle);
11 }, 20000);
12
13 console.log(window.appData.numBeeps);
```

# With RxJS this gets easier

```
1 interval(100)
2 .pipe(
3   map(n => n + 1),
4   take(20)
5 )
6 .subscribe(
7   beep => console.log(`beeped ${beep} times`),
8   error => {},
9   complete => { console.log('finished'); }
10 );
```



Observables are streams of event data

# RxJS Experiments with StackBlitz

# JavaScript Reactive

## API: RxJS

# RxJS is an *Observable* based API

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- **Observable**: any stream of events that can be subscribed to
  - **Subject**: an observable that can be used to *generate* events
- **Subscriber**: subscribes to the events
- **Operator**: transforms or operates on a stream of events

# RxJS 6 has streamlined and optimized the API

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- Introduced a **pipe** operator
- Improved exception handling with a **catchError** operator
- Allowed developers to import only features they want
- Reduced the overall size of the deployed library
- Renamed some features



# Rxjs Observable Generators

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**i** Just scratching the surface rxjs-  
`dev.firebaseapp.com/api`

# Creating Your Own Observable

```
1  const myEvents$ = new Subject();  
2  
3  const count = 0;  
4  setInterval(() => {  
5    myEvent$.next(count);  
6    count++;  
7  });
```

**i** Most Observables are actually subjects of some type

# Observables and Angular

# Testing with Observables

# Alternate Testing API - Marble Diagrams

# Resources

# Resources

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- [rxjs-dev.firebaseapp.com](https://rxjs-dev.firebaseapp.com) - An *odd* choice as it seems the documentation was dumped here for version 6
- [angular.io/guide/rx-library](https://angular.io/guide/rx-library) - A decent introduction focused on RxJS for Angular apps

# More Resources

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- [github.com/chariotsolutions/spa-day-2018-samples](https://github.com/chariotsolutions/spa-day-2018-samples) - Sample Single Page Apps from our one-day Angular, React, and Vue conference with slides. We use RxJS in all three in some capacity.
- Stack Overflow (sigh)  
[stackoverflow.com/questions/tagged/rxjs](https://stackoverflow.com/questions/tagged/rxjs)